

SONIA R. MAYORAL, PH.D.

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EDUCATION

Stanford University School of Medicine, Stanford, CA 2012
Ph.D. Neurosciences

San Jose State University, San Jose, CA 2002
B.S. Biological Sciences, conc. in Molecular Biology
Minors: Chemistry, Humanities

RESEARCH POSITIONS

Assistant Professor, Carney Institute for Brain Science, Brown University 2021-present
Department of Neuroscience

- **Appointed June 1, 2021**
- Investigating CNS neuron-glia and glia-glia interactions in health and disease.

Postdoctoral Fellow, University of California, San Francisco 2012-2021
Department of Neurology, Advisor: Dr. Jonah R. Chan

- Demonstrated that developmental CNS myelination occurs independent of dynamic neuronal signaling (Mayoral *et al*, Cell Rep. 2018).
- Collaborated on six projects within and outside the lab exploring various aspects of myelination in mammalian systems, including novel, high-throughput screens of known bioactive compounds to promote oligodendrocyte differentiation and myelination.

Graduate Student, Stanford University School of Medicine 2006-2012
Department of Pediatrics, Advisor: Dr. Anna A. Penn

- Established that sex differences exist in a mouse model of preterm brain injury (Mayoral *et al*, Ped Res. 2009).

Postbaccalaureate Fellow, Mayo Clinic College of Medicine 2003-2005
Department of Neuroimmunology, Advisors: Dr. Charles L. Howe and Dr. Moses Rodriguez

- Described a signaling pathway elicited by human IgM antibodies in glia (Howe & Mayoral *et al*, Neurobiol Dis. 2006).

Summer Research Intern, Brigham and Women's Hospital, Harvard Medical School 2001
Department of Endocrinology, Advisor: Dr. Gail K. Adler

- Studied the effects of estrogen on female rats with cardiovascular damage (Oestreicher *et al*, Kid Int. 2006).

Undergraduate Researcher, San Jose State University 1999-2002
Department of Biological Sciences, Advisor: Dr. David J. Matthes

- Cloned the open reading frame of the *Drosophila Sema1b* gene. The research culminated in a senior thesis entitled "Cloning and Constructing *Drosophila Sema1b* cDNA".

HONORS/AWARDS/DISTINCTIONS

COBRE-CNS Pilot Project Grant, Brown University/NIH 2026^B
Brown University Nominee for the Mathers Foundation Research Grant 2026^B
Brown University Nominee for the Brain Research Foundation Seed Grant 2025^B
Zimmerman Innovation Award, Carney Institute for Brain Science 2025^B
Blackman Family Fund for MS Awards 2024^B
Brown University, Department of Neuroscience Nominee for the Sloan Research Fellowship 2024^B
COBRE-CBHD Pilot Project Grant, Brown University/NIH 2023^B
Brown University, Department of Neuroscience Nominee for the Sloan Research Fellowship 2023^B
Blackman Family Fund for MS Award 2023^B

Brown University Nominee for the Mallinckrodt Grant	2023 ^B
Brown University Nominee for the Pew Biomedical Scholars Award	2023 ^B
Brown University Nominee for Searle Award	2022 ^B
Brown University Nominee for Rita Allen Award	2022 ^B
Advancing Research Careers (ARC) Program Scholar, Carney Institute for Brain Science	2022-2024 ^B
COBRE-CNS Pilot Project Grant, Brown University/NIH	2021 ^B
Robert J. and Nancy D. Carney Endowed Chair	2021 ^B
Mentoring Institute for Neuroscience Diversity Scholars Fellow, NINDS/Univ. of Florida	2018
Advanced Postdoctoral Career Transition Award (K22), NINDS-NIH	2017
Institutional Research and Academic Career Development Award, NIGMS-NIH/UCSF	2012
Poster Prize, International Congress of Neuroendocrinology	2010
Young Investigator Travel Award, International Congress of Neuroendocrinology	2010
Katherine McCormick Travel Award, Stanford University School of Medicine	2009
Travel Fellowship, International Conference on Steroids and Nervous System	2009
Neuroscience Scholars Program (NSP) Scholar, Society for Neuroscience	2007-2010
Postbaccalaureate Research Education Program Fellow, Mayo Clinic College of Medicine	2003-2005
Ronald E. McNair Scholar, San Jose State University	2002
Doris A. Howell/CSU Program for Education and Research in Biotechnology Award	2001
Summer Honors Undergraduate Research Program Scholar, Harvard Medical School	2001
Minority Access to Research Careers (MARC) Program Scholar, San Jose State University	2000-2001
O. C. Williams Humanities Scholarship, San Jose State University	1999

^B*awarded while at Brown*

PUBLICATIONS (prior to Brown)

Pan S, **Mayoral SR**, Choi HS, Chan JR, Kheirbek MA. Preservation of a remote fear memory requires new myelin formation. Nat Neuro. 2020. 23:487-499.

Rankin KA, Mei F, Kim K, Shen YA, **Mayoral SR**, Despons C, Lorrain DS, Green AJ, Baranzini SE, Chan JR, Bove R. Selective Estrogen Receptor Modulators Enhance CNS Remyelination Independent of Estrogen Receptors. J Neurosci. 2019. 39:2184-2194.

Mayoral SR, Etcheberria A, Shen, YA, Chan JR. Initiation of CNS Myelination in the Optic Nerve Is Dependent on Axon Caliber. Cell Reports. 2018. 16:544-550.

Dombrowski Y, O'Hagan T, Dittmer M, Penalva R, **Mayoral SR**, Bankhead P, Fleville S, Eleftheriadis G, Chao Z, Naughton M, Hassan R, Moffat J, Falconer J, Boyd A, Hamilton P, Allen IV, Kissenpfennig A, Moynagh PN, Evergren E, Perbal B, Williams AC, Ingram RJ, Chan JR, Franklin RJM, Fitzgerald DC. Regulatory T cells promote myelin regeneration in the central nervous system. Nat Neuro. 2017. 20:674-680.

Mayoral SR, Chan JR. The environment rules: spatiotemporal regulation of oligodendrocyte differentiation. Curr Opin Neurobiol. 2016. 39: 47-52. *Review*.

Mei F*, **Mayoral SR***, Nobuta H, Wang F, Despons C, Lorrain DS, Xiao L, Green AJ, Rowitch D, Whistler J, Chan JR. Identification of the Kappa-Opioid Receptor as a Therapeutic Target for Oligodendrocyte Remyelination. 2016. 36:7925-35. **co-first authors*.

Etcheberria A, Hokanson K, Dao DQ, **Mayoral SR**, Mei F, Redmond SA, Ullian EM, Chan JR. Dynamic Modulation of Myelination in Response to Visual Stimuli Alters Optic Nerve Conduction Velocity. J Neurosci. 2016. 36:6937-48.

Hernandez M, Patzig J, **Mayoral SR**, Costa KD, Chan JR, Casaccia P. Mechanostimulation Promotes Nuclear and Epigenetic Changes in Oligodendrocytes. 2016. 36: 806-13.

Shen YA, Chen Y, Dao DQ, **Mayoral SR**, Wu L, Meijer D, Ullian EM, Chan JR, Lu QR. Phosphorylation of LKB1/Par-4 establishes Schwann cell polarity to initiate and control myelin extent. Nat Commun. 2014. 5: 4991.

Mei F, Fancy SP, Shen YA, Niu J, Zhao C, Presley B, Miao E, Lee S, **Mayoral SR**, Redmond SA, Etzeberria A, Xiao L, Franklin RJ, Green A, Hauser SL, Chan JR. Micropillar arrays as a high-throughput screening platform for therapeutics in multiple sclerosis. *Nature Med.* 2014. 20: 954-60.

Lan WC, Priestley M, **Mayoral SR**, Tian L, Shamloo M, Penn AA. Sex-specific cognitive deficits and regional brain volume loss in mice exposed to chronic, sublethal hypoxia. *Pediatr Res.* 2011. 70: 15-20.

Mayoral SR, Omar G, Penn AA. Sex differences in a hypoxia model of preterm brain damage. *Pediatr Res.* 2009. 66: 248-53.

Howe CL*, **Mayoral S***, Rodriguez M. Activated microglia stimulate transcriptional changes in primary oligodendrocytes via IL-1beta. *Neurobiol Dis.* 2006. 23: 731-9. *co-first authors.

Oestreicher EM, Guo C, Seely EW, Kikuchi T, Martinez-Vasquez D, Jonasson L, Yao T, Burr D, **Mayoral S**, Roubasanthisuk W, Ricchiuti V, Adler GK. Estradiol increases proteinuria and angiotensin II type 1 receptor in kidneys of rats receiving L-NAME and angiotensin II. *Kidney Int.* 2006. 70: 1759-68.

PUBLICATIONS (while at Brown)

Published:

Nylander A, Anderson A, Rowles W, Hsu S, Lazar AA, **Mayoral SR**, Pease-Raissi SE, Green A, Bove R. Re-WRAP (Remyelination for women at risk of axonal loss and progression): A phase II randomized placebo-controlled delayed-start trial of bazedoxifene for myelin repair in multiple sclerosis. *Contemp Clin Trials.* 2023. 134: 107333.

This manuscript describes a clinical trial that I helped support during my postdoc at UCSF. My contribution was blinding the treatment medication (i.e. placebo vs bazedoxifene) and keeping records.

Accepted:

McQuillan M, Yi VF, Mendez SR, Molica, GM, Stein C, Jones SI, Fregoso SR, Hassell L-A, Saleem M, Torre S, Zhang Y, Heinsteins D, Hernandez Rivera I, Pease-Raissi S, Green A, Cordano C, Sasaki Y, **Mayoral SR**. Myelin inhibits SARM1 activation to delay degeneration of axons along optic nerves. *Nature Neuroscience*. *Accepted Jun 2026*.

This work was largely carried out in my lab. The first author, Molly McQuillan, is a senior PhD graduate student who led the work in my lab. We collaborated with Dr. Yo Sasaki at Washington University, St. Louis, who performed metabolomics sample processing and analysis for the project, and Dr. Christian Cordano and Dr. Ari Green at UCSF, who performed visual function assays. All other co-authors are current or past trainees in my lab at Brown. Using transection models, immunohistochemistry, protein biochemistry, electron microscopy, proteomics, and metabolomics methods, this work reveals that oligodendrocyte (OL) and myelin presence suppress SARM1, a pro-degenerative enzyme, activation following nerve injury to slow degeneration. It also describes, for the first time, a novel mutant mouse model with partial nerve myelination. I conceived the project, performed experiments and analysis, provided guidance and support, and assisted in writing the manuscript.

Under Revision:

Yang X, **Mayoral SR**, Jiang YH, Marshall J, Huang YWA. UBE3A loss impairs estrogen receptor signaling and oligodendrocyte function in Angelman syndrome.

This work reveals that UBE3 loss, as occurs in Angelman Syndrome, impairs OPC proliferation and differentiation via estrogen receptor signaling disruption. I contributed to the isolation of primary rat OPCs for biochemical analysis and provided feedback on the manuscript.

Submitted:

Yi VF, McQuillan M, Molica GM, **Mayoral SR**. Neuroprotective functions of myelin in the central nervous system. *Review*.

This mini-review discusses known and putative mechanisms underlying myelin's protective functions in the CNS. Structural changes, metabolic support, and barrier properties are described, as well as the capacity for repair via remyelination processes following myelin damage in injury and disease, particularly the neurodegenerative disease MS.

In Preparation:

Fregoso SR*, Rivera IH*, Saleem M, Jones S, Torre S, Zhang Y, Heinsteins D, Bhagwat A, Molica GM, McQuillan M, Mendez SR, Yi VF, **Mayoral SR**. PDGFR α signaling is necessary for proper OPC occupation of the CNS. *co-first authors.

This work describes and characterizes the development of the OL lineage in the absence of PDGFR α signaling using immunohistochemistry and fluorescence imaging methods. The work was fully carried out by several trainees in my lab, and was led by two research assistants. I conceived the project, provided guidance and support, and am leading the manuscript preparation.

Mollica GM, Aguilera JL, Fregoso SR, Larschan E, **Mayoral SR**. Dynamic transcriptional changes in astrocyte genes coincide with oligodendrocyte generation during early optic nerve development.

Using single-nuclei RNAseq approaches, this study reveals that the most dynamic transcriptional changes occurring during the onset of OL generation during development are related to astrocyte extracellular matrix (ECM) genes. Several candidate ECM genes are identified and tested for roles in promoting OL differentiation. The work was led by, Gabi Molica, a senior PhD student in my lab who carried out the experiments and analysis with assistance from others. We collaborated with the lab of Dr. Erica Larschan, who provided computational and bioinformatics assistance. I conceived the project, provided guidance and support, and am assisting in preparing the manuscript.

Mendez SR, **Mayoral SR**. Myelination induces specific transcriptional changes in neurons.

Using an in vitro, primary myelinating co-culture system consisting of dorsal root ganglion (DRG) neurons and OLs, this study examines, for the first time, the specific changes that myelination induces in the neuronal transcriptome. This work is being led by Sara Rios Mendez, a PhD student in my lab. I conceived the project, provided guidance and support, and am assisting in preparing the manuscript.

RESEARCH PRESENTATIONS

International:

Glial Branch 2025 Annual Academic Conference & International Frontier Symposium on Glial Cells and Myelin Diseases. Chongqing, CH. <i>Plenary Speaker</i>	2025 ^B
European Meeting on Glial Cells in Health and Disease. Marseille, FR. <i>Co-chair and speaker</i>	2025 ^B
Glia Club Seminar. Virtual. <i>Selected speaker</i>	2025 ^B
European Meeting on Glial Cells in Health and Disease. Berlin, GR. <i>Poster presenter</i>	2023 ^B
International Federation of Assoc. of Anatomists. Istanbul, TK. <i>Co-chair and speaker</i>	2022 ^B
European Meeting on Glial Cells in Health and Disease. Edinburgh, UK. <i>Poster presenter</i>	2017
Myelin Gordon Research Seminar. Lucca, IT. <i>Selected speaker</i>	2016
International Congress of Neuroendocrinology. Rouen, FR. <i>Poster presenter</i>	2010
International Conference on Steroids and the Nervous System. Torino, IT. <i>Poster presenter</i>	2009

^Bpresented while at Brown

National:

Temple University, Philadelphia, PA. Ctr for Neural Development and Repair. <i>Seminar speaker</i>	2026 ^B
Society for Neuroscience Meeting, San Diego, CA. <i>Selected speaker</i>	2025 ^B
University of Illinois, Chicago, IL. Dept of Physiology and Biochemistry. <i>Seminar speaker</i>	2025 ^B
Axon Degeneration Meeting, Washington, DC. <i>Invited speaker</i>	2024 ^B
American Society for Neurochemistry Meeting, Portland, OR. <i>Selected speaker</i>	2024 ^B
Myelin Gordon Research Conference, Ventura, CA. <i>Selected speaker</i>	2024 ^B
Albany Medical University, Albany, NY. Dept of Neurosci and Exper Therap. <i>Seminar speaker</i>	2023 ^B
University of California, Santa Barbara, CA. Ctr for Sci and Eng. <i>Seminar speaker</i>	2022 ^B
Santa Clara University, Santa Clara, CA. Dept Neuroscience. <i>Seminar speaker</i>	2021
Society for Neuroscience Meeting, Chicago, IL. <i>Selected speaker</i>	2019
Santa Clara University, Santa Clara, CA. Dept Neuroscience. <i>Seminar speaker</i>	2019
Nabrit Conference for Early Career Scholars, Providence, RI. <i>Selected speaker</i>	2019
Myelin Gordon Research Conference, Ventura, CA. <i>Selected speaker</i>	2018
Society for Neuroscience Meeting, Washington, DC. <i>Poster presenter</i>	2017
IRACDA Conference, San Diego, CA. <i>Poster presenter</i>	2015

Skyline College, San Bruno, CA. Dept Biology. <i>Seminar speaker</i>	2014
Society for Neuroscience Meeting, San Diego, CA. <i>Poster presenter</i>	2010
Society for Neuroscience Meeting, Chicago, IL. <i>Poster presenter</i>	2009
Macalester College, St. Paul, MN. <i>Seminar speaker</i>	2009
Society for Neuroscience Meeting, Washington, DC. <i>Poster presenter</i>	2008
Pediatric Academic Societies Meeting, Honolulu, HI. <i>Poster presenter</i>	2008
Annual Biomedical Research Conf. for Minority Students, Dallas, TX. <i>Poster presenter</i>	2004
Annual Biomedical Research Conf. for Minority Students, New Orleans, LA. <i>Poster presenter</i>	2002
Annual Biomedical Research Conf. for Minority Students, Orlando, FL. <i>Poster presenter</i>	2001
National Minority Research Symposium, Washington, DC. <i>Poster presenter</i>	2000

^Bpresented while at Brown

Brown Internal:

CHBD COBRE Retreat. <i>Speaker</i>	2024
STEMJAZZ Talklet. <i>Speaker</i>	2024
BioMed Research Retreat. <i>Invited Speaker</i>	2023
Center for Translational Neuroscience Retreat. <i>Invited speaker</i>	2023
Bench-to-Bedside, NSGP Seminar Series. <i>Speaker</i>	2021
MCBGP Retreat. <i>Speaker</i>	2021
NSGP Retreat. <i>Speaker</i>	2021

By Research Team Members:

Molica GM, Aguilera JL, Fregoso SR, Mayoral SR. *Investigating extrinsic regulators of oligodendrocyte differentiation during development*. Myelin Gordon Research Conference, Lucca, IT. May 2026. (also presented at the NeuroBoston Meeting, Dec 2025; Boston Interactive Glia Group Meeting, May 2025).

Rios Mendez S, Mayoral SR. *Defining neuronal gene expression changes driven by oligodendrocytes*. Myelin Gordon Research Conference, Lucca, IT. May 2026.

Heinstein, D, Torre S, Jones S, Mayoral SR. *Regional characterization of newly differentiated oligodendrocyte populations in postnatal PDGFRa KOs*. NEURON Conference, Quinnipac University, Quinnipac, CT. Apr 2026.

Yi VF, Jones S, Mayoral SR. *Microglia inflammatory state is significantly driven by oligodendroglia and myelin presence during neuronal injury*. NeuroBoston at Tufts University, Boston, MA. Dec 2025.

McQuillan M, Mendez SR, Stein C, Sasaki Y, Mayoral SR. *Investigating the neuroprotective mechanisms of oligodendroglia during Wallerian Degeneration*. Keystone Symposium, Neurodegeneration: Linking Cellular Pathways to Therapeutic Strategies, June 2025. (also presented at Cold Spring Harbor Laboratory Meeting on Glia in Health & Disease Meeting, 2024; Society for Neuroscience Meeting, 2023).

Molica GM, Aguilera JL, Fregoso SR, Mayoral SR. *A Potential Role for Extracellular Matrix in the Initiation of Optic Nerve Oligodendrocyte Differentiation*. Cold Spring Harbor Laboratory Meeting on Glia in Health & Disease Meeting, Aug 2024. (also presented at Society for Neuroscience Meeting, 2023).

Fregoso SR, Saleem M, Molica GM, Mayoral SR. *PDGF signaling is necessary for complete OPC occupation of the central nervous system*. Society for Neuroscience Meeting, 2023. (also presented at SACNAS National Meeting, 2023; New England Science Symposium, 2023; Mind Brain Research Day, 2023; Latino Medical Student Association New England Regional Conference, 2023).

Del Toro A, McLaughlin R, Mayoral SR, Hoffman-Kim D. *Investigation of myelin in 3D microtissues*. Society for Neuroscience Meeting, 2021. (rotation project).

RESEARCH SUPPORT

Current Funding:

COBRE Center for Nervous System Function Pilot Project Grant

09/2026-08/2027

PI: J Sanes P20GM103645 (NIGMS)

Title: "Investigating how myelination functionally reprograms neuronal gene expression"

The central hypothesis of this proposal is that myelination induces discrete, functionally relevant transcriptional programs in neurons that enable metabolic support, stress resilience, and long-term neuronal stability. Rather than serving solely as a structural modification, myelination is posited to act as a regulatory interface that reshapes neuronal gene expression in response to axonal ensheathment. To test this hypothesis, we will combine myelinating co-culture systems with single-cell transcriptomic analyses to define how myelination alters neuronal gene expression under both baseline and challenged conditions.

Direct costs: \$100,000

Completed Funding:

Carney Institute for Brain Science, Zimmerman Innovation Award

03/2025-06/2026

PI: Mayoral

Title: "Myelin *trans*-Tango: A new tool for labeling myelinated neurons"

No tools currently exist for identifying myelinated neurons. This project aims to begin the adaptation of the circuit-tracing tool, *trans*-Tango, for labeling myelinated neurons in vitro. Dr. Gilad Barnea, the developer of *trans*-Tango, is a collaborating investigator on this project. The funding is supporting the development and testing of Myelin *trans*-Tango ligand constructs in vitro, animal costs, and the graduate student performing the work.

Direct costs: \$132,000

Blackman Family Fund for MS Award

12/2023-11/2024

Co-PI: Mayoral, Co-PI: Dr. Diane Hoffman-Kim, Brown University

Title: "Neural microtissue for testing therapeutics for Multiple Sclerosis"

There is a lack of multicellular, in vitro systems for the examination of demyelination and remyelination. This project seeks to examine the utility of using 3D microtissues for screening therapeutics following demyelinating insults. The funding largely supported the graduate student performing the work.

Direct costs: \$50,000

Blackman Family Fund for MS Award

12/2023-11/2024

PI: Mayoral

Title: "Uncovering the signals that promote the initiation of oligodendrogenesis"

The signals that regulate the timing of oligodendrocyte generation during early brain development are not known. This project aims to use an unbiased, single-cell RNA sequencing approach to uncover signaling factors that promote or inhibit the production of oligodendrocytes during development. The funding largely supported the graduate student performing the work.

Direct costs: \$50,000

COBRE Center for the Biology of Human Disease Pilot Project Grant

09/2023-08/2024

PI: D Rand P20GM109035 (NIGMS)

Title: "Investigating the impacts of oligodendroglia on local axon translation"

This pilot project aims to continue the investigation of whether oligodendroglia and myelin presence locally regulates the axonal translome using an Axon-TRAP approach and the novel, partially myelinated optic nerve mutant mouse model. The grant largely funded the in vivo troubleshooting of the Axon-TRAP method, mouse husbandry and breeding costs, and the research assistant performing the work.

Direct costs: \$50,000

Blackman Family Fund for MS Award

08/2023-07/2024

PI: Mayoral

Title: "Investigating mechanisms for myelin-mediated CNS neuroprotection"

Myelination is known to be neuroprotective, but the mechanisms that underlie this protection remain unknown. This project aims to use a novel, partially myelinated optic nerve mutant mouse model to investigate how myelin presence impacts Wallerian Degeneration and known pathway components (ie. Sarm1, MAP kinases, calpains, etc.) following optic nerve transection. The funding largely supported the graduate student performing the work.

Direct costs: \$30,000

COBRE Center for Nervous System Function Pilot Project Grant

08/2021-07/2023

PI: J Sanes P20GM103645 (NIGMS)

Title: "Investigating the impacts of oligodendroglia on local axon translation"

It is unknown whether myelin presence around an axon impacts local axon translation mechanisms. This pilot project aims to determine whether oligodendroglia and myelin presence locally regulates the axonal translome using an Axon-TRAP approach and the novel, partially myelinated optic nerve mutant mouse model. The grant largely funded the generation of Axon-TRAP AAV constructs, mouse husbandry and breeding costs, and the research assistant performing the work.

Direct costs: \$162,500

Postdoctoral Career Transition Award to Promote Diversity in Neuroscience Research 09/2017-06/2024

PI: Mayoral K22NS104234 (NINDS)

Title: "Uncoupling oligodendrocyte differentiation and myelination: axon signaling not required"

This award funded my postdoctoral research at UCSF where I revealed that dynamic neuronal signaling was not necessary for oligodendrocyte generation and myelination during CNS development. It also funded initial studies in my lab at Brown University where we utilized single-cell RNA sequencing and in situ hybridization methods to begin to uncover non-neuronal signals required for the generation of oligodendrocytes in the CNS at the proper time. Aside from the actual studies, it also supported research assistants, a graduate student who took the lead on the work, and 75% of my effort for my first 3 years at Brown.

Direct costs: \$442,134

MENTEE FUNDING/AWARDS/HONORS

Undergraduate Teaching and Research Fellowship to Tenzin Pagano	2026
Carney Institute for Brain Science, Graduate Award to Sara Rios Mendez	2026
NEURON Conference, Best Presentation Award to Dylan Heinstein	2026
NeuroBoston Meeting, Best Presentation Award to Vivian Yi	2025
Cold Spring Harbor Laboratory, Advanced Techniques in Molecular Neuroscience Course	2025
Funding to Sara Rios Mendez	
AbbVie Internship to Gabriela Molica	2025
Undergraduate Teaching and Research Fellowship to Emily Lopes	2025
Brown NSGP Annual Retreat Poster Award to Gabriela Molica	2024
Carney Institute for Brain Science, Graduate Award to Gabriela Molica	2024
NSF-GRFP Honorable Mention to Sara Rios Mendez	2023
Society for Neuroscience Travel and Professional Development Award to Gabriela Molica	2023
Undergraduate Teaching and Research Fellowship to Natalie Chernysh	2023
Undergraduate Teaching and Research Fellowship to Maria Saleem	2023
Undergraduate Teaching and Research Fellowship to Aryan Bhagwat	2022

SERVICE AND OUTREACH

Brown University Service:

Ciencia y Cafecito, SACNAS at Brown networking event, <i>Faculty Mentor</i>	2026
NSGP Grad Fair at SFN Meeting, <i>Recruiter</i>	2025
Career Center - Demystifying Academic On-Site Interview and Offer Negotiation, <i>Panelist</i>	2024
MCB DIAP's Minorities in Science Panel, <i>Panelist</i>	2024
Carney Institute, Center for Translational Neuroscience Committee, <i>Member</i>	2024-present
BP-ENDURE Grad Fair at SFN Meeting, <i>Recruiter</i>	2024
Women in Neuroscience Conference, <i>Faculty Mentor</i>	2024
Department of Neuroscience Graduation Ceremony, <i>Name Reader</i>	2024
FirstGENs Lunch, <i>Faculty Mentor</i>	2024
Microscopy Committee, <i>Member</i>	2024-present
Northeast Regional PREP Panel - Defining your Scientific Path, <i>Panelist</i>	2023
Carney Institute, Center for Translational Neuroscience Retreat, <i>Speaker</i>	2023
Women in Science and Engineering (WiSE) Networking Conference, <i>Panelist</i>	2023
SACNAS Presents: Planning a Path to the Professoriate Panel, <i>Panelist</i>	2023
Becoming a Resilient Scientist Workshop – Unit 4: Feedback Resistance, <i>Facilitator</i>	2022
NeuroDUG Lunch Series, <i>Invited Faculty</i>	2022, 23, 26

Neuroscience Department Vision Committee, <i>Member</i>	2022
IMSD Admissions Committee, <i>Member</i>	2022
Department of Neuroscience Honor's Thesis Reader	2022-present
Carney Institute, Center for Neurobiology of Cells and Circuits Steering Committee, <i>Member</i>	2022-present
NSGP In-House Seminar Series, <i>Organizer</i> (co-organizer with Dr. Karla Kaun, 2022-2023)	2022-present
NSGP Admissions Committee, <i>Member</i> (except 2023)	2021-present
MCBGP Student Retreat (virtual), <i>Mentor and Speaker</i>	2021
NSGP Student Retreat (virtual), <i>Mentor and Speaker</i>	2021

Academic Service:**Symposia Organized/Chaired:**

Symposium Co-Chair, Mechanisms Underlying Oligodendrocyte and Myelin Development and Dynamics, European Glia in Health and Disease Meeting, Marseille, FR, July 9, 2025.

Symposium Co-Chair, Chinese Society of Anatomical Sciences Symposium – Brain Development and Regeneration, 20th Congress of International Federation of Associations of Anatomists (IFAA), Istanbul, Turkey, August 6, 2022. (*virtual*).

Ad hoc Grant Review: NSF Career Award, Graduate Women in Science (GWIS) Fellowship, Israel Science Foundation (ISF)

Ad hoc Scientific Journal Review: *Cell*, *Nature Neuroscience*, *Journal of Neuroscience*, *Nature Communications*, *Elife*, *Brain*, *Glia*, *Neuroscience (IBRO)*, *Cerebral Cortex*, *JOVE*

Professional Memberships:

Society for Neuroscience 2007-present

Science Communication/Community Outreach:

Nature Neuroscience's News & Comment Q&A, *Featured Scientist* 2024
For a special issue of the journal focusing on glia, select glial researchers across all career stages were featured for a Q&A.

"People Behind the Science" Podcast, *Featured Scientist* 2023
Hosted by Dr. Marie McNeeley, this podcast features interviews with scientists across all fields for general audience listening.

Brown Brain Fair, *Educator and Demonstrator* 2023-2025
A yearly event held on Brown's campus during Brain Awareness Week in the Spring. It brings together over 600 community members to learn about the brain from Brown University laboratories and community groups. Members from my lab, myself included, as well as students from my course, "The Non-Neuronal Brain" host tables at the event to educate the public about glia.

TEACHINGBrown University Courses:

Instructor, Course: *The Non-Neuronal Brain* 2024-present

Developed and taught a course on the topic of glia to a class of ~20 junior and senior undergraduates.

Student Feedback: (scale 5=high, 1=low)

2026: course effectiveness= 4.88, instructor effectiveness= 4.94, 71% response rate, 24 students

2025: course effectiveness= 4.43, instructor effectiveness= 4.71, 76% response rate, 21 students

2024: course effectiveness= 4.46, instructor effectiveness= 4.92, 70% response rate, 20 students

Guest Lecturer, Course: *Advanced Cellular and Molecular Neuroscience* 2023-2024, 26

Developed and taught a lecture and led a discussion on oligodendrocytes to a class of ~20 Neuroscience Graduate Program students.

Guest Lecturer, Course: *Neurotechnology: Molecular Tools and Methods for Neurobiology* 2023

Developed and taught a lecture on the technique of immunohistochemistry to a class of ~18 undergraduate students.

Guest Lecturer, Course: Principles of Neurobiology

2022-2023

Developed and taught a lecture on oligodendrocytes to a class of ~60 undergraduate students.

External Courses (prior to Brown):

Guest Lecturer, Course: Basic Concepts in Neural Cell and Developmental Biology, UCSF 2018

Independently developed and taught a lecture on oligodendrocyte biology to a class of 18 Neuroscience PhD graduate program students. Created and graded exam questions.

Co-Instructor, Course: Cell Biology, San Francisco State University

2014

Developed and taught four upper-division lectures on topics in cell biology to a class of 85 undergraduates under the mentorship of Assistant Professor, Dr. Blake Riggs. Implemented active learning techniques and used cutting edge technologies. Created and graded problem sets and exams.

MENTORSHIP

Brown University:

Primary Research Mentor, Department of Neuroscience

2021-present

Primary mentor to trainees at various levels (postdocs, graduate students, undergraduates) performing research in my lab.

Postdoctoral Associates

Melissa Hingorani

2023-2024

Graduate Students

Vivian Yi (Biotechnology Master's Program, *currently a PhD student at Paris Brain Institute*) 2024-2026

Sara Rios Mendez (NSGP) 2023-present

Molly McQuillan (NSGP, *currently a Grant Strategist at Columbia University*) 2022-2026

Gabriela Molica (NSGP) 2022-present

Research Assistants

Sophie Jones 2025-present

Izra Rivera Hernandez (*currently a Scientist at Eli Lilly*) 2024-2025

Lexi-Amber Hassell (*currently an NSGP graduate student at Brown*) 2022-2023

Tamara Matheny 2023-2024

Colin Call (*currently a Research Assistant at Brown*) 2022-2023

Sydney Fregoso (*currently a Medical Student at the University of Arizona*) 2021-2023

Undergraduate Students

Grace Hu (Neuroscience) 2026-present

Tenzin Pagano (Neuroscience) 2025-present

Sofia Torre (Neuroscience) 2025-present

Dylan Heinsteins (Neuroscience) 2025-2026

You Zhang (Neuroscience, *currently a Research Assistant at Harvard University*) 2025-2026

Emily Lopes (Undeclared) 2024-2025

Mohammed Serri (BP-ENDURE, co-mentored with Chris Moore) 2024

Christopher Stein (BP-ENDURE) 2024

Wilson Vo (Computer Engineering) 2024

Natalie Chernysh (Neuroscience, *currently an Associate at GRAIL*) 2023-2024

Lud Milca Ceus (Leadership Alliance, *currently a Master's Student at Rutgers*) 2022

Maria Saleem (Neuroscience, *currently a Medical Student at Texas Christian University*) 2022-2024

Aryan Bhagwat (Applied Math, *currently a Consultant at Simon-Kucher*) 2022-2024

Thesis Committee Member, various graduate programs

2021-present

Trainer and thesis committee member to students in doctoral and master's programs including the Neuroscience Graduate Program (NSGP); Molecular Biology, Cellular Biology, and, Biochemistry Graduate

Program (MCBGP); Therapeutic Sciences Graduate Program (TSGP); Pathobiology Graduate Program (PGP); Biomedical Engineering Master's and PhD Programs; and Biotechnology Master's Program.

Jayden Cyrus (MCBGP)	2025-present
Indirah Conover (NSGP)	2025-present
Illyda Top (NSGP)	2025-present
Francesca Vecchio (Biomedical Engineering Master's Program)	2025
Sophie Brown (Biomedical Engineering)	2024-2025
Riley Harrison (MCBGP)	2024-present
Doo Kyung (Ellie) Kim (MCBGP)	2024-present
Katrina Albo (Pathobiology)	2024-present
Dallis Sergio (Pathobiology)	2024-present
Abigail Drexler (Biotechnology Master's Program)	2024
Alex Lehr (GPP)	2024-present
Mikayla Lopes (MCBGP)	2024-present
Nell Klimpert (NSGP)	2023-present
Alex Del Toro (NSGP)	2022-2026

Concentration Advisor, Department of Neuroscience

2022-present

Provide assistance and advice to undergraduate Neuroscience concentrators at Brown. I currently have 9 advisees: Matthew Atiogbe, Darren Chen, Xiaoping Chen, Maria Gonzalez, Thanmay Kumar, Elena Lynott, Hiyab Mussie, Angela Nie, Aaron Plous

External:

Neuroscience Scholars Program (NSP) Mentor, Society for Neuroscience

2020-present

Provide mentorship (via monthly Zoom meetings) to NSP scholars and participate in NSP events at SFN meetings.

Mentees

Andrea Campbell (University of Rochester Medical Center)	2026-present
Sanjay Neerukonda (University of Texas, MD Anderson Cancer Center)	2026-present
Norma Hylton (Harvard University)	2023-2025
George Melchor Jr. (Georgetown University)	2021-2023

PROFESSIONAL DEVELOPMENT

Teaching Advancement:

Faculty LAUNCH Workshop, <i>Sheridan Center for Teaching and Learning, Brown University</i>	2023
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Mentorship Training:

BioMed OGS Mentorship Training, <i>Brown University</i>	2024-2025
Women in Neuroscience Conference Mentoring Workshop, <i>Brown University</i>	2024
Team Science, <i>NINDS OPEN</i>	2024
Inclusive Mentoring: Building Equity-Minded Lab Environments, <i>Brown University</i>	2024
Leadership Alliance Mentor Workshop, <i>Brown University</i>	2024
UTRA Faculty Mentoring Learning Community Sessions, <i>Brown University</i>	2023
Brown SR-EIP Mentor Training, <i>Brown University</i>	2022
MCBGP Mentor Training, <i>Brown University</i>	2022
DEI STEMM Faculty Workshop, <i>Brown University</i>	2021

Research and Leadership:

NSF CAREER Workshop, <i>National Science Foundation</i>	2025
Advancing Research Careers (ARC) Workshops, <i>Carney Institute for Brain Science</i>	2023-2024
NIH R01 Grant Writing Workshop, <i>AtKisson Training Group</i>	2023
Faculty RCR, <i>Brown University</i>	2021
Research Leadership Development Workshop (8 days), <i>AtKisson Training Group</i>	2021